

ABSTRACT OF THE DISCLOSURE

[0307] Nanoscale materials with domain sizes less than 100 nanometers and unusual shapes and morphologies are disclosed. A broad approach for manufacturing oxide and non-oxide nanomaterials with aspect ratio different than 1.0 is presented. Methods for engineering and manufacturing nanomaterials' size, shape, surface area, morphology, surface characteristics, surface composition, distribution, and degree of agglomeration are discussed. The methods taught includes the use of surfactants, dispersants, emulsifying agents in order to prepare precursors, which are then processed into novel nanoscale particle morphologies.